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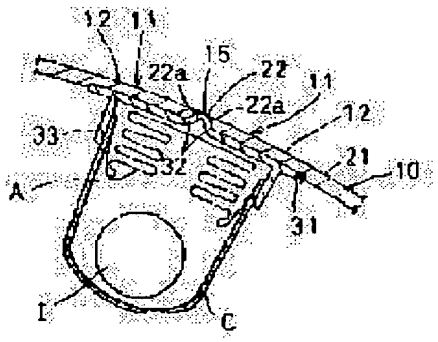
(54) STRUCTURE FOR CAR INTERIOR SIDE MEMBER INTEGRALLY HAVING AIR BAG DOOR

(57)Abstract:
PROBLEM TO BE SOLVED: To quickly burst a burst expected part at operating time and prevent easily cracking at normal time, by providing a reinforcing resin member in a reverse surface of a car interior side member main unit in an air bag door reverse side, and thinly forming a bending part to a surface side of the car interior side member main unit so that the reinforcing resin member divides the burst expected part of the car interior side member main unit.
SOLUTION: A car interior side member main unit 21 is constituted by a hard resin, in a reverse side thereof, a reinforcing resin member 31 is provided, a burst expected part 15 opening an air bag door 11, when an air bag A is inflated, is provided. A divided part 22 formed along the burst expected part 15 is bitten by the reinforcing resin member 31, to be exposed by a surface of the car room side member main unit 21. The reinforcing resin member 31 is made as a resin softer than a hard resin of the car room side member main unit 21, to be provide in a reverse surface side of the air bag door 11 by smoothing bursting at operating time, an almost reverse V-shaped bending part 32 is formed so as to protrude to a side of the car interior side member main unit 21. The bending part 32, in the case of pressing in the vicinity of the burst expected part 15 from a surface of a car interior side member 10 at normal time, has large rigidity, so as to prevent cracking of the burst expected part 15.



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* NOTICES *

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CLAIMS

[Claim(s)]
[Claim 1] Vehicle room flank material which has in one the air back door which is characterized by providing the following, and which the fracture schedule section is formed in the vehicle room flank material made of a resin the letter of the abbreviation for H characters, in the shape of abbreviation for U characters, etc., and is fractured and opened from the aforementioned fracture schedule section at the time of air bag expansion. The vehicle room flank material main part which consists of rigid resin. the reinforcement resin which it was prepared in the rear face of the vehicle room flank material main part which consists of a resin more flexible than the rigid resin of this vehicle room flank material main part, and carries out an abbreviation equivalent to the background of the aforementioned air bag door at one, it was crooked to the vehicle room flank material book body-surface side so that a vehicle room flank material main part might be divided in the aforementioned fracture schedule section, and this flection was used as thin meat, and has been exposed to a vehicle room flank material book body surface
[Claim 2] Structure of the vehicle room flank material which has in one the air bag door characterized by crooking a reinforcement resin member to the front-face side of a vehicle room flank material main part during the ends end of the fracture schedule section, forming the flection for hinges in a claim 1, and the thickness of a vehicle room flank material main part being thin in this section.
[Claim 3] Vehicle room flank material which has in one the air back door which is characterized by providing the following, and which the fracture schedule section is formed in the vehicle room flank material made of a resin the letter of the abbreviation for H characters, in the shape of U character, etc., and is fractured and opened from the aforementioned fracture schedule section at the time of air bag expansion. The vehicle room flank material main part with which the laminating of a foam and the epidermis was carried out to the base material which consists of rigid resin. the reinforcement resin which it was prepared in the rear face of the base material which consists of a resin more flexible than the rigid resin of the aforementioned base material, and carries out an abbreviation equivalent to the background of the aforementioned air bag door at one, it was crooked to the base-material front-face side so that a base material might be divided in the aforementioned fracture schedule section, and this flection became thin meat, and has been exposed to a base-material front face -- a member
[Claim 4] Structure of the vehicle room flank material which has in one the air bag door characterized by the reinforcement resin member touching the rear face of epidermis in the fracture schedule section in a claim 3.
[Claim 5] Structure of the vehicle room flank material which has in one the air bag door characterized by crooking a reinforcement resin member to a base-material front-face side during the ends end of the fracture schedule section, forming the flection for hinges in claims 3 or 4, and the thickness of a base material being thin in this section.

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DETAILED DESCRIPTION

[Detailed Description of the Invention]
[0001]
[The technical field to which invention belongs] This invention relates to the structure of the vehicle room flank material which has an air bag door in one.
[0002]
[Description of the Prior Art] In recent years, in the automobile, air bag equipment came to be formed also in a passenger seat. This air bag equipment is attached in the background of the vehicle room flank material which consists of an air bag, a hold case called canister with which the air bag is contained, and a starting device (inflator), and consists of an instrument panel of the front face of a passenger seat etc. The air bag section of the instrument panel in which air bag equipment was formed has expansion opening for an air bag, and this opening is covered by the air bag door with the aforementioned instrument panel and appearance of the same kind at time of peace. And when an automobile once gets a big shock by collision etc., the air bag contained in the aforementioned air bag case operates and expands, and opening of the air bag door is pushed and carried out from the inside.
[0003] However, if it is in the thing of the structure where expansion opening for air bags and an air bag door are constituted by another object, it is easy to produce a crevice to the circumference of an air bag door by few [a product size] product contraction accompanying [vary or] use etc., and there is a possibility that the appearance of an instrument panel may be spoiled. Moreover, attaching an air bag door in expansion opening for air bags of an instrument panel according to a back process makes a man day increase.
[0004] then, like the instrument panel 160 shown in drawing 20 which is drawing 19 and its f-f cross section by recently At the rigid resin 161 rear face which consists of polypropylene resin etc., the fracture schedule section 162 of notch-like thin meat While it forms so that a flat-surface configuration may turn into a letter of the letter of the abbreviation for U characters, or the abbreviation for H characters which is not illustrated like this example, and carrying out partition formation of the air bag door Da, what backed the back up plates 163, such as an aluminum board and a griddle, at this air bag door Da rear face is proposed. An air bag and C of the hinge region and A by which agreement 164 is constituted between the edges of the fracture schedule section 162 are air bag hold cases. As shown in drawing 21 , when an air bag A expands according to this structure, the fracture schedule section 162 of the aforementioned instrument panel 160 fractures, and the air bag door Da opens. 162a is [0005] which is the portion which the aforementioned fracture schedule section 162 fractured. Moreover, as shown in drawing 23 which expands drawing 22 and its part, laminating formation of the synthetic-resin foams 171, such as a polyurethane foam, is carried out at one, and the vehicle room flank material (instrument panel) P which comes to cover the front face with the synthetic-resin tabulation hide 172 further is known by the base material 174 in which it became from rigid resin, such as polypropylene resin, and the expansion opening O for air bags was formed. the light-gage fracture schedule section by which agreement 173 was formed in epidermis 172, and 175 -- air -- a bug -- an air bag door and T of the core material for doors, the anchoring member to which 176 fixes the vehicle room flank material P and the air bag hold case C, and D are the fracture schedule sections of a foam

171 According to this structure, as shown in drawing 24 , the air bag door D is pushed by the air bag A from a background at the time of air bag expansion, the core material 175 for air bag doors which consists of a metal plate etc. is pushed up, according to the press force, the fracture schedule section T of a foam and the light-gage fracture schedule section 173 of epidermis 172 fracture, and the air bag door D opens. The fracture section of the foam by which Agreements Ta and Tb were divided, and 177 are hinge regions.

[0006] however, if some which consist of rigid resin have the former type, i.e., vehicle room flank material, thickness of the fracture schedule section is made very thin so that it may fracture promptly by expansion of an air bag -- kicking did not become impossible and the design was not easy on balance with a moldability And if thickness of the fracture schedule section is made very thin, when a fracture schedule section front face will be pressed by crew etc. at time of peace, a possibility of producing a crack etc. is in this fracture schedule section.

[0007] If some which consist of the base material, foam, and epidermis made of rigid resin had the latter type, i.e., vehicle room flank material, since core materials for air bag doors, such as a griddle, certainly had to be fixed to expansion opening for air bags formed in the base material on the other hand, a fabrication operation is complicated and there was a problem used as cost quantity.

[0008] Furthermore, also in which the aforementioned type, if an air bag carries out predetermined-time progress after it expands and extends an air bag door, it will fade. In that case, an air bag door becomes [being opened with as without closing completely, and], and will be in the state where fracture section 162a of the air bag doors Da and D and Ta turned to the upper part. Since the fracture surface of rigid resin or the end face of the core material 175 for air bag doors was exposed, the fracture section of this air bag door was hard, and it was not desirable.

[0009]

[Problem(s) to be Solved by the Invention] This invention was made in view of the aforementioned point, the fracture schedule section fractures it promptly by expansion of an air bag, and an air bag door opens it, and it cannot produce a crack easily in the fracture schedule section at time of peace, and offers the structure of the high vehicle room flank material of the safety concealed by the resin with the rigid resin end face still more flexible than it in the fracture section of an air bag door.

[0010]

[Means for Solving the Problem] In the vehicle room flank material which has in one the air back door which the fracture schedule section is formed in the vehicle room flank material made of a resin the letter of the abbreviation for H characters, in the shape of abbreviation for U characters, etc., fractures invention of a claim 1 from the aforementioned fracture schedule section at the time of air bag expansion, and is opened It is prepared in the rear face of the vehicle room flank material main part which consists of rigid resin, and the vehicle room flank material main part which consists of a resin more flexible than the rigid resin of this vehicle room flank material main part, and carries out an abbreviation equivalent to the background of the aforementioned air bag door at one. It is crooked to a vehicle room flank material book body surface side so that a vehicle room flank material main part may be divided in the aforementioned fracture schedule section, and this flection starts the structure of the vehicle room flank material which has in one the air bag door characterized by the bird clapper from the reinforcement resin member which considered as thin meat and has been exposed to a vehicle room flank material book body surface.

[0011] If it is in invention indicated by this claim 1, vehicle room flank material consists of a vehicle room flank material main part made of rigid resin which defines the appearance, and a reinforcement resin member prepared in the portion equivalent to the air bag door rear-face portion of the rear face of a vehicle room flank material main part, an air bag door portion is pushed by expansion of an air bag from the inside, and it fractures in the fracture schedule section.

[0012] In the aforementioned fracture schedule section, since it was crooked to the vehicle room flank material book body surface side and has exposed to a vehicle room flank material book

body surface so that a reinforcement resin member more flexible than the rigid resin of a vehicle room flank material main part may divide a vehicle room flank material main part, the reinforcement resin member which buries the fragmentation section of a vehicle room flank material main part fractures by expansion of an air bag. Therefore, in order that a reinforcement resin member more flexible than the rigid resin of a vehicle room flank material main part may fracture, the fracture will be made promptly. moreover, the reinforcement resin in the aforementioned fracture schedule section from the ease of carrying out of the fracture -- a setup of the thickness of a member can be performed thickly, and the thickness range which can be set up becomes large and it becomes easy [fabrication] from the case of rigid resin

[0013] Furthermore, as mentioned above, in the fracture schedule section, the fragmentation section is formed in a vehicle room flank material main part of a reinforcement resin member, and the inner skin (minute cross section) of the fragmentation section is in the state where it was covered by the reinforcement resin member crooked to the front-face side of a vehicle room flank material main part. therefore, the aforementioned reinforcement resin -- the fracture section end face of the air bag door opened by fracture of a member consists of wrap reinforcement resin members in the fragmentation circles peripheral surface of the aforementioned vehicle room flank material main part, and will be in the state where it was concealed by the resin (reinforcement resin member) more flexible than rigid resin

[0014] In a claim 1, a reinforcement resin member is crooked to the front-face side of a vehicle room flank material main part during the ends end of the fracture schedule section, and invention of a claim 2 forms the flection for hinges, and is characterized by the thickness of a vehicle room flank material main part being thin in this section.

[0015] If it is in invention of this claim 2, since a stiff vehicle room flank material main part is made thin by the hinge region and rigidity is low, at the time of air bag expansion, following fracture of the fracture schedule section, an air bag door is promptly crooked by the hinge region, opens to a vehicle interior-of-a-room side, and realizes smooth expansion of an air bag. Since a reinforcement resin member is especially prepared in the rear face of a vehicle room flank material main part in invention of a claim 1 at one, although there is a possibility that the thickness in a hinge region may increase and rigidity may increase, according to invention of this claim 2, the rigidity of a hinge region can be reduced and an air bag door can open it more promptly. Consequently, before an air bag door is still enough crooked in a vehicle interior-of-a-room side, it can prevent more certainly an air bag's overflowing the crevice between the fracture schedule sections (fracture schedule section after fracture) into the vehicle interior of a room, and barring expansion of a smooth air bag. Furthermore, since it is not necessary to prepare the crevice for lowering the rigidity of a hinge region to the front-face side of an air bag door, the appearance of vehicle room flank material becomes good.

[0016] In the vehicle room flank material which, on the other hand, has in one the air back door which the fracture schedule section is formed in the vehicle room flank material made of a resin the letter of the abbreviation for H characters, in the shape of U character, etc., fractures invention of a claim 3 from the aforementioned fracture schedule section at the time of air bag expansion, and is opened The vehicle room flank material main part with which the laminating of a foam and the epidermis was carried out to the base material which consists of rigid resin, It is prepared in the rear face of the base material which consists of a resin more flexible than the rigid resin of the aforementioned base material, and carries out an abbreviation equivalent to the background of the aforementioned air bag door at one. It is crooked to a base-material front-face side so that a base material may be divided in the aforementioned fracture schedule section, and this flection serves as thin meat and the structure of the vehicle room flank material which has in one the air bag door characterized by the bird clapper from the reinforcement resin member exposed to a base-material front face is started.

[0017] If it is in invention indicated by this claim 3, vehicle room flank material turns into a base material made of rigid resin from the reinforcement resin member in which a foam and epidermis were prepared into the portion equivalent to the vehicle room flank material main part by which the laminating was carried out, and the air bag door rear-face portion on the aforementioned rear face of a base material. A base material consists of the same composition as the vehicle

room flank material main part indicated by the claim 1 in invention of this claim 3. And by expansion of an air bag, while a reinforcement resin member fractures promptly in the fracture schedule section of a base material, the foam and epidermis of the fracture schedule section of this base material and a corresponding portion are also fractured, and an air bag door opens. The fracture section end face of an air bag door will be in the state where it was concealed by the reinforcement resin member more flexible than the rigid resin of a base material, for the same reason as the vehicle room flank material main part in a claim 1.
[0018] Invention of a claim 4 is characterized by the reinforcement resin member in a claim 3 touching the rear face of epidermis in the fracture schedule section. if it is in invention of this claim 4 — the epidermis of the fracture schedule section, and a reinforcement resin — a member — since a foam does not intervene in between, in case vehicle room flank material fractures in the fracture schedule section, it can prevent that a foam disperses
[0019] Moreover, the reinforcement resin member in claims 3 or 4 is crooked to a base-material front-face side during the ends end of the fracture schedule section, and invention of a claim 5 forms the flection for hinges, and is characterized by the thickness of a base material being thin in this section. If it is in invention of this claim 5, since a stiff base material is made thin by the hinge region and rigidity is low, at the time of air bag expansion, following fracture of the fracture schedule section, an air bag door is promptly crooked by the hinge region, opens to a vehicle interior-of-a-room side, and realizes smooth expansion of an air bag.
[0020]
[Embodiments of the Invention] According to an attached drawing, this invention is explained in detail below. The example of invention of a claim 1 is explained first. Drawing 5 of drawing 1 is a cross section in which the perspective diagram of the vehicle room flank material of the example and drawing 2 show the time of the a-a cross section of drawing 3 [the perspective diagram near / the / an air bag door and] of drawing 1 becoming, and the air bag of drawing 4 becoming small at the time of air bag expansion.
[0021] The vehicle room flank material 10 shown in drawing 1 or drawing 3 constitutes the instrument panel of an automobile, and has the air bag door 11 in a passenger side at one. the reinforcement resin with which this vehicle room flank material 10 was formed in the background of the vehicle room flank material main part 21 and the vehicle room flank material main part 21 at one — it consists of a member 31, and the fracture schedule section 15 for fracturing at the time of air bag A expansion, and making the aperture of the air bag door 11 possible is formed in plane view abbreviation zygal so that the air bag door 11 may be divided In addition, let the flat-surface configuration of the fracture schedule section 15 be an abbreviation U typeface like the fracture schedule section 162 shown in drawing 19 of the term of the conventional technology. A sign 12 is a portion used as a hinge region, in case an air bag door opens, and it is located between 16 and 16 and between 17 and 17 in the ends end of the fracture schedule section 15.
[0022] The aforementioned vehicle room flank material main part 21 constitutes the front face while defining the appearance of the vehicle room flank material 10, and it consists of rigid resin mold goods formed in the necessary configuration by injection molding etc. The rigid resin which constitutes the vehicle room flank material main part 21 has the rigidity and intensity for which vehicle room flank material is asked, and general-purpose rigid resin, such as polypropylene resin (PP), is used. Especially, it is points, such as rigidity and configuration retentivity, to bending elastic-modulus (JIS-K7203 conformity) 20000 kgf/cm2. The thing of 120 degrees C or more (4.6kgf load) of heat deflection temperatures (JIS-K7207 conformity) is desirable above. It consists of PP with bending elastic-modulus 27000 kgf/cm2, 132 degrees C [of heat deflection temperatures], and a thickness of 2.5mm in this example.
[0023] moreover, the division section 22 forms in the portion of the fracture schedule section 15 of the aforementioned vehicle room flank material main part 21 along with the fracture schedule section 15 — having — the division section 22 — the reinforcement resin of vehicle room flank material main part 21 rear face — the member 31 ate away and it has exposed on vehicle room flank material main part 21 front face the width of face (division interval) of this division section 22 — suitably — ** — although carried out, generally you may be about 2mm or less in addition, this division section 22 — the aforementioned vehicle room flank material main part 21 and a

reinforcement resin — making a member 31 into the same color — moreover, it is desirable by really fabricating to carry out as [distinguish / hardly / from external surface / it]
[0024] a reinforcement resin — a member 31 is for concealing the fracture section end face of the air bag door 11, is formed by the resin more flexible than the rigid resin which constitutes the aforementioned vehicle room flank material main part 21, and is prepared in the air bag door 11 rear-face side of the vehicle room flank material main part 21 at one while making the vehicle room flank material 10 easy to fracture in the aforementioned fracture schedule section 15
[0025] the reinforcement resin of this example — the member 31 is formed so that the flection 32 crooked to the **** V typeface so that it might project to the vehicle room flank material main part 21 side may become the thickness of 3mm, 150mm long, and a 320mm wide rectangular plate-like object with plane view abbreviation zygal Thickness of the peak of the aforementioned flection 32 is made thinner than the other sections so that it may be easy to fracture at this peak. Generally you may be about 0.3-0.5mm.
[0026] Moreover, in order that the flection 32 crooked as mentioned above to the front-face side of the vehicle room flank material main part 21 may demonstrate the rigidity which serves as the press direction and abbreviation parallel direction, and becomes size when the fracture schedule section 15 neighborhood is pushed on time of peace from the front face of the vehicle room flank material 10, the on-the-strength enhancement effect in time of peace is high, and prevents the crack of the fracture schedule section 15.
[0027] further — the reinforcement resin of this example — a member 31 — a reinforcement resin — a member — the frame section 33 is set up near the periphery of 31 rear face This frame section 33 is inserted in the opening edge periphery of the air bag hold case C, and is used for performing fixation between the air bag case C and this vehicle room flank material 10. In addition, the fixation is made using fixed meanses, such as a bolt which is not illustrated.
[0028] the aforementioned reinforcement resin — from a resin with a member 31 more flexible than the rigid resin which constitutes the aforementioned vehicle room flank material main part 21 — becoming — bending elastic-modulus (JIS-K7203 conformity) 1000 kgf/cm2 - 5000 kgf/cm2 It is easy to fracture a resin and it is desirable in respect of reinforcement of air bag door 11 portion. the aforementioned vehicle room flank material main part 21 — bending — elastic-modulus 27000 kgf/cm2 the example of PP to a bird clapper — setting — a reinforcement resin — a member 31 — bending elastic-modulus 3000 kgf/cm2 It consists of a TPO (polyolefine system thermoplastic elastomer) resin.
[0029] In addition, injection molding etc. can perform easily fabrication of the aforementioned vehicle room flank material 10. namely, — first — injection molding etc. — a reinforcement resin — a member 31 is formed subsequently, the reinforcement resin — a member 31 — a form block — as an insertion — arranging — rigid resin — injecting — a reinforcement resin — the desired vehicle room flank material 10 can be obtained by forming the vehicle room flank material main part 21 which was united with the member 31
[0030] a reinforcement resin [in / the fracture schedule section 15 / as the vehicle room flank material 10 of the aforementioned structure was described above in time of peace] — the on-the-strength increase operation which the flection 32 of a member 31 does so can protect crack initiation in the fracture schedule section 15 also to surface press
[0031] and — the time of a shock joining an automobile by collision etc. — the operation of Inflator I — an air bag A — expanding — thereby — a reinforcement resin — the rear face of a member 31 is pushed, the fracture schedule section 15 of thin meat fractures, as shown in drawing 4 , the air bag door 11 crooks and opens with a hinge 12, and an air bag A develops in the car Agreement 15a is the fracture section. the reinforcement resin with which the vehicle room flank material main part 21 which consists of rigid resin consists of a resin more flexible than it in the fracture schedule section 15 at the time of the aforementioned air bag expansion -- the press force according to air bag expansion since it is beforehand divided by the member 31 — the reinforcement resin of the fracture schedule section 15 — it concentrates on a member 31 and fractures efficiently and the reinforcement resin — since the member 31 consists of resins more flexible than the rigid resin of the vehicle room flank material main part 21, fracture is made much more smoothly and quickly

[0032] If the air bag A which once expanded carries out predetermined-time progress after that, it will fade, as shown in drawing 5 . the air bag door 11 which serves as the state in the state where it opened to the vehicle interior of a room, in that case — a fracture section 15a portion — setting — the aforementioned fragmentation circles peripheral surface (minute cross section) 22a of the vehicle room flank material main part 21 — the aforementioned reinforcement resin — it is concealed by the flection 32 of a member 31, stiff rigid resin is not exposed, and it is desirable as vehicle room flank material

[0033] Next, the example of invention of a claim 2 is explained. The perspective diagram in which the perspective diagram showing near [in / the example / in drawing 6] an air bag door and drawing 7 show near / in other examples of invention the expanded sectional view of the hinge region and drawing 9 were indicated by the c-c cross section of drawing 6 , and drawing 10 was indicated to be for the b-b cross section of drawing 6 and drawing 8 by the claim 2 / an air bag door, and drawing 11 are the d-d cross sections of drawing 10 .

[0034] In invention indicated by the claim 2, as shown in drawing 6 or drawing 9 the reinforcement resin prepared in the air bag door 11A background of vehicle room flank material 10A — a member — 31A between end of ends 16of fracture schedule section 15A A of vehicle room flank material main part 21A, and 16A, and in between [12A and 13A] 17A and 17A (i.e., hinge regions) It is crooked to the front-face side of vehicle room flank material main part 21A, flection 34for hinges A and 35A are formed, and the thickness of vehicle room flank material main part 21A is thin by this hinge region 12A and 13A. About other points, it is the same as invention indicated by the claim 1. a reinforcement resin [in / the fracture schedule section / in sign 32A] — a member — the flection of 31A is shown

[0035] If it is in invention indicated by this claim 2, since stiff vehicle room flank material main part 21A is made thin in hinge region 12A and 13A, hinge region 12A13A tends to be crooked at the time of the aperture of air bag door 11A by air bag expansion, and air bag door 11A opens promptly. And since the crevice for a hinge region does not exist in the front face (superficies) of hinge regions 12A and 13A, the appearance of vehicle room flank material 10A is good.

[0036] The perspective diagram and drawing 11 which show near [in other examples of invention drawing 10 was indicated to be by the claim 2] an air bag door are the d-d cross section of drawing 10 . vehicle room flank material 10B of this example — fracture schedule section 15B — from an abbreviation U typeface — becoming — the configuration — responding — a reinforcement resin — a member — it consists of aforementioned drawing 6 or the same structure as the example of drawing 9 except for the point that 31B is formed a reinforcement resin [in / the fracture schedule section / B / between / the ends-end of the fracture schedule section /, and 21/ B / 16/ a hinge region and / B / 12/ an air bag door and / B / sign 11/ in a vehicle room flank material main part and 32B] — the flection of a member and 34B are the flections for hinges

[0037] Next, the example of invention of a claim 3 is explained. The cross section of the vehicle room flank material which drawing 12 requires for one example of invention indicated by the claim 3, and drawing 13 are the cross sections showing the time of air bag expansion of this example. that for which the vehicle room flank material 40 of illustration is used as an instrument panel — it is — the air bag door 41 — one — having — the vehicle room flank material main part 45 and a reinforcement resin — it consists of a member 57 The vehicle room flank material main part 45 consists of a base material 46, a foam 51, and epidermis 55, and constitutes the appearance of the vehicle room flank material 40. Agreement 52 is the line of the imagination which shows the fracture schedule section of a foam, and forms plane view abbreviation zygal. The fracture schedule section of vehicle room flank material is constituted by the fracture schedule section 52 of this foam, the fracture schedule section 47 of a base material, and the fracture schedule section 56 of epidermis, and the air bag door 41 is divided.

[0038] A base material 46 holds the configuration of this vehicle room flank material 40, or is for giving the rigidity which can bear the predetermined press force in time of peace, and consists of a rigid resin product formed according to vehicle room flank material 40 configurations by injection molding etc. The same thing as the rigid resin of the vehicle room flank material main part 21 shown in the example of the aforementioned claim 1 of a kind, thickness, physical

properties, etc. of the rigid resin which constitutes this base material 46 etc. is desirable. Moreover, the fracture schedule section 47 for base materials is formed in the corresponding position with the fracture schedule sections 52 and 56 of other members at this base material 46. the reinforcement resin prepared in the rear face of a base material 46 used as the background of the air bag door 41 in this fracture schedule section 47 — it is in the state where the member 57 ate away and the base material 46 was made to divide In addition, the base material 46 of this example consists of PP with bending elastic-modulus 27000 kgf/cm2, 132 degrees C [of heat deflection temperatures], and a thickness of 2.5mm.

[0039] It is a foam 51 and elastic foams, such as a polyurethane foam, are [for raising the buffer nature of vehicle room flank material 40 front faces] suitable for it. Moreover, epidermis 55 constitutes the front face of the vehicle room flank material 40, and consists of a plastics leather etc., and what was made into the predetermined configuration by slush molding, the vacuum forming, etc. is used. The fracture schedule section 56 for epidermis of the thin meat which consists of a slot of V typeface etc. is formed in the position which corresponds with the fracture schedule sections 47 and 52 of other members at this epidermis 55.

[0040] on the other hand — a reinforcement resin — it is for reinforcing the fracture schedule section 52 at time of peace, and is prepared in the rear face of a base material 46 used as the background of the air back doors 41 and 41 at one while enabling it to fracture a member 57 promptly in the aforementioned fracture schedule section 52 at the time of air bag A expansion this reinforcement resin — in the aforementioned fracture schedule section 47 for base materials, it is crooked in type at **** V:00 to the vehicle room flank material 40 front-face side of a base material 46, and it eats away in a base material 46, a base material 46 is divided, the peak portion of the flection 58 exposed to base-material 46 front face serves as thin meat, and a member 57 buries the fracture schedule section 47 for base materials

[0041] the aforementioned reinforcement resin — the reinforcement resin in which the member 57 became from the resin more flexible than a base material 46, and the thickness, the kind of resin, and physical properties were shown in the example of a claim 1 — it is the same as the case of a member 31 the reinforcement resin of this example — a member 57 — bending elastic-modulus 3000 kgf/cm2 It consists of a TPO (polyolefine system thermoplastic elastomer) resin. moreover, the reinforcement resin of this example — a member 57 — from an abbreviation rectangle — becoming — the rear face — **** 59 for anchoring to the air bag hold case C — a reinforcement resin — it is formed inside [periphery] the member 57

[0042] in addition, fabrication of the aforementioned vehicle room flank material 40 — first — the aforementioned reinforcement resin — a member 57 — injection molding etc. — forming — the reinforcement resin — a member 57 — the inside of a form block — as an insertion — arranging — a base material 46 — a reinforcement resin — it forms in a member 57 and one subsequently, the aforementioned reinforcement resin — the base material 46 with which the member 57 was united, and epidermis 55 are set to a foaming type, a foaming raw material is poured in between a base material 46 and epidermis 55, and the foam 51 which was united with the aforementioned base material 46 and epidermis 55 is formed If the postforming article is picked out from a foaming type, the desired vehicle room flank material 40 will be obtained.

[0043] a base material 46 pushes the vehicle room flank material 40 which has the aforementioned structure at the time of air bag A expansion — having — the fracture schedule section 47 for base materials — the reinforcement resin of thin meat — a member 57 fractures the reinforcement resin which buries the fragmentation section since the base material 46 which consists of rigid resin is divided in the fracture schedule section 47 for base materials in that case — a member 57 — stress — concentrating — moreover — the reinforcement resin — a member 57 — a base material — eye a flexible hatchet — it fractures very promptly Moreover, a foam 51 fractures in the fracture schedule section 52 portion, and, almost simultaneously with it, epidermis 55 fractures in the fracture schedule section 56 for epidermis further. And as shown in drawing 13 , the air bag doors 41 and 41 are pushed open, an air bag A develops to the vehicle interior of a room, and the air bag A after time progress becomes small. thus, a reinforcement resin with the base material 46 more flexible than the rigid resin which the end face of the fracture sections 41a and 41a of the air bag door 41 fractured and opened becomes from rigid

resin — it is concealed by the aforementioned flection 58 of a member 57, and is desirable as vehicle room flank material

[0044] In addition, the aforementioned foam 51 may be formed in epidermis 55 and one as backing material of epidermis 55. Drawing 14 is the cross section showing the fracture schedule section of the vehicle room flank material which used such epidermis. In the example shown in this drawing, foam 51A to which epidermis 55A consists of a soft-polyvinylchloride-resin sheet, and becomes the rear face from polypropylene form is backed by one. In addition, improvement in an ornament is achieved, the front face of fracture schedule section 56A of epidermis 55A being used as a concave. Moreover, the V groove (not shown) which results in the background of fracture schedule section 56A of epidermis is suitably formed in the rear face of fracture schedule section 52A of foam 51A. a reinforcement resin [in / the fracture schedule section / A / 57/ the fracture schedule section of a base material, and / A / 47/ a base material and / A / sign 46/ in a reinforcement resin member and 58A] — it is the flection of a member

[0045] Next, invention indicated by the claim 4 is explained. It is the cross section in which drawing 15 shows the fracture schedule section of the one example like invention indicated by the claim 3 about that by which the laminating of a foam and the epidermis was carried out to the base material as for the vehicle room flank material of invention indicated by this claim 4.

[0046] if it is in invention of this claim 4, it is shown in drawing 15 — as — the position of fracture schedule section 52B of fracture schedule section 47of base-material 46B B, and foam 51B — it is — a reinforcement resin — a member — flection 58of 57B B divides base-material 46B and foam 51B, it is in contact with the epidermis rear face in fracture schedule section 56of epidermis 55B B, and other structures are the same as that of invention indicated by the claim 3 the example of this invention — setting — fracture schedule section 56B and the reinforcement resin of epidermis 55B — a member — since foam 51B does not intervene among flection 58B of 57B, there is no possibility that foam 51B may disperse, at the time of fracture of the fracture schedule section by expansion of an air bag In addition, also in invention indicated by the claim 4, like other examples shown in drawing 16 , a concave may be prepared in the front face of fracture schedule section 56C of epidermis 55C, and ornament nature may be raised. sign 46C — a base material and a reinforcement resin [in / the fracture schedule section / C / 57/ the fracture schedule section of a foam, and / C / 52/ a foam and / C / 51/ the fracture schedule section of a base material, and / C / 47/ in a reinforcement resin member and 58C] — it is the flection of a member

[0047] Drawing 17 is the perspective diagram showing near an air bag door about one example of invention indicated by the claim 5. Invention indicated by this claim 5 like invention indicated by the aforementioned claims 3 or 4 It is related with that by which the laminating of foam 51D and the epidermis 55D was carried out to base-material 46D. in the ends end of fracture schedule section 47D of a base material by 43D, 43D, 44D, hinge region 48D between 44D, and 48D a reinforcement resin — a member — 57D is crooked to the front-face side of base-material 46D, flection 49D for hinges is formed, and it is characterized by the thickness of base-material 46D being thin in this section Therefore, at the time of the aperture of the air bag doors 41D and 41D by expansion of an air bag, it is easily crooked by hinge region 48D and 48D, and air bag door 41D and 41D open promptly. a reinforcement resin [in / the fracture schedule section / in sign 47D] — a member — the fracture schedule section of foam 51D and 56D of the flection of 57D and 52D are the fracture schedule sections of epidermis 55D

[0048] in addition, the example of drawing 17 — the fracture schedule section — setting — a reinforcement resin — although it is the case where foam 51D intervenes between the rear faces of flection 47D of a member, and epidermis 55D — the aforementioned reinforcement resin — it is made for flection 47D of a member to be contacted at the rear face of fracture schedule section 56D of epidermis through foam 51D

[0049] Moreover, let the aforementioned fracture schedule section suitably be an abbreviation U typeface other than abbreviation zygal also in invention indicated by the aforementioned claim 3 or 5.

[0050]

[Effect of the Invention] If it is in invention indicated by the claim 1 as it illustrates above and

being explained, since the fracture schedule section is constituted by the reinforcement resin member more flexible than a vehicle room flank material main part, at the time of air bag expansion, it fractures promptly and certainly and an air bag door is opened. Furthermore, in the aforementioned fracture schedule section, since the reinforcement resin member is crooked to the front-face side of vehicle room flank material, when a vehicle room flank material front face is pressed at time of peace, the intensity to the press direction is high, and it prevents producing a crack etc. in the fracture schedule section. In addition, since the vehicle room flank material main part which consists of rigid resin material will be concealed by the reinforcement resin member more flexible than it, the fracture section end face of an air bag door is desirable as vehicle room flank material.

[0051] Moreover, if it is in invention indicated by the claim 2, since a stiff vehicle room flank material main part is made thin by the hinge region and rigidity is low in invention of a claim 1, in addition to the effect of the invention indicated by the claim 1, the following effect is done so. That is, at the time of air bag expansion, following the fracture in the fracture schedule section, an air bag door is promptly crooked by the hinge region, opens to a vehicle interior-of-a-room side, and realizes smooth expansion of an air bag.

[0052] If it is in invention indicated by the claim 3, since the fracture schedule section of a base material is constituted by the reinforcement resin member more flexible than a base material on the other hand, at the time of air bag expansion, it fractures promptly and certainly and an air bag door is opened. Furthermore, in the fracture schedule section of the aforementioned base material, since the reinforcement resin member is crooked to the front-face side of vehicle room flank material, when a vehicle room flank material front face is pressed at time of peace, the intensity of the base material to the press direction is high, and it can prevent producing a crack etc. in the fracture schedule section. In addition, since the base material which consists of rigid resin material will be concealed by the reinforcement resin member more flexible than it, the fracture section end face of an air bag door is desirable as vehicle room flank material.

[0053] since [moreover,], as for invention of a claim 4, the reinforcement resin member touches the rear face of epidermis in the fracture schedule section in a claim 3 -- the epidermis of the fracture schedule section, and a reinforcement resin -- a member -- a foam does not intervene in between, but in case vehicle room flank material fractures in the fracture schedule section, a possibility that a foam may disperse disappears

[0054] Furthermore, since the reinforcement resin member in claims 3 or 4 is crooked to a base-material front-face side during the ends end of the fracture schedule section, the flection for hinges is formed and the thickness of a base material is thin in this section, rigidity becomes low by the hinge region, and at the time of air bag expansion, following fracture in the fracture schedule section, an air bag door is promptly crooked by the hinge region, and invention of a claim 5 is opened to a vehicle interior-of-a-room side, and realizes smooth expansion of a

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[Translation done.]

* NOTICES *

1.This document has been translated by computer. So the translation may not reflect the original precisely.
2.**** shows the word which can not be translated.
3.In the drawings, any words are not translated.

DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]
[Drawing 1] It is the perspective diagram of the vehicle room flank material concerning one example of invention indicated by the claim 1.
[Drawing 2] It is the expansion perspective diagram showing near the air bag door of drawing 1 .
[Drawing 3] It is the a-a cross section of drawing 1 .
[Drawing 4] It is the cross section showing the time of air bag expansion of this example.
[Drawing 5] It is the cross section showing the state where the air bag which once expanded became small.
[Drawing 6] It is the perspective diagram showing near [in one example of invention indicated by the claim 2] an air bag door.
[Drawing 7] It is the b-b cross section of drawing 6 .
[Drawing 8] It is the expanded sectional view of the hinge region.
[Drawing 9] It is the c-c cross section of drawing 6 .
[Drawing 10] It is the perspective diagram showing near [in other examples of invention indicated by the claim 2] an air bag door.
[Drawing 11] It is the d-d cross section of drawing 10 .
[Drawing 12] It is the cross section of the vehicle room flank material concerning one example of invention indicated by the claim 3.
[Drawing 13] It is the cross section showing the time of air bag expansion of this example.
[Drawing 14] It is the cross section showing the fracture schedule section about other examples of this invention.
[Drawing 15] It is the cross section showing the fracture schedule section about one example of invention indicated by the claim 4.
[Drawing 16] It is the cross section showing the fracture schedule section in other examples.
[Drawing 17] It is the perspective diagram showing near [in one example of invention indicated by the claim 5] an air bag door.
[Drawing 18] It is the e-e cross section of drawing 17 .
[Drawing 19] It is the perspective diagram of the vehicle room flank material which has a general air bag door in one.
[Drawing 20] It is the f-f cross section.
[Drawing 21] It is the cross section showing the time of the air bag expansion.
[Drawing 22] It is the cross section of other conventional examples of the vehicle room flank material which has an air bag door in one.
[Drawing 23] It is the cross section expanding and showing the part.
[Drawing 24] It is the cross section showing the time of the air bag expansion.
[Description of Notations]
11, 11A, 11B, 41, 41A, 41B, 41C, 41D: Air bag door
15, 15A, 15B: Fracture schedule section
21, 21A, 21B, 45: Vehicle room flank material main part
31, 31A, 31B, 57, 57A, 57B and 57C, and a 57D:reinforcement resin -- a member
32, 32A, 32B, 58, 58A, 58B, 58C, and a 58D:reinforcement resin -- the flection of a member

34A, 34B, 35A, 49D: The flection for hinges
46, 46A, 46B, 46C, 46D: Base material
47 47A, 47B, 47C, 47D: The fracture schedule section of a base material
52, 52A, 52B, 52C, 52D: The fracture schedule section of a foam
51, 51A, 51B, 51C, 51D: Foam
55A, 55B, 55C, 55D: Epidermis
56, 56A, 56B, 56C, 56D: The fracture schedule section of epidermis

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[Translation done.]

* NOTICES *

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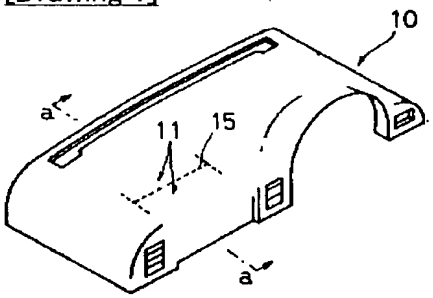
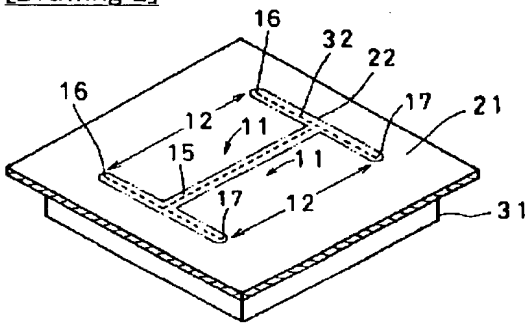
2.**** shows the word which can not be translated.
3.In the drawings, any words are not translated.

DRAWINGS

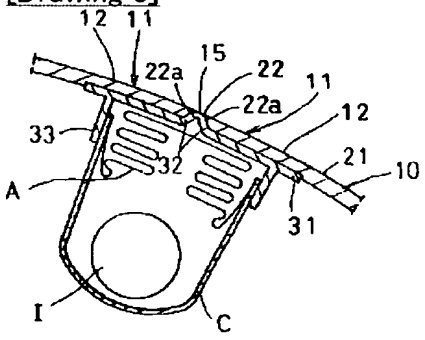
[Drawing 1]



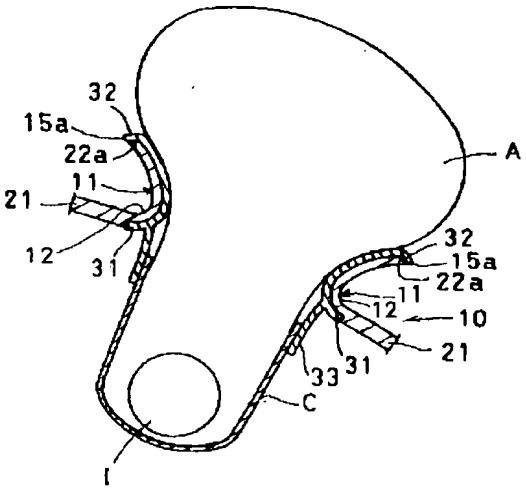
[Drawing 2]



[Drawing 3]



[Drawing 4]



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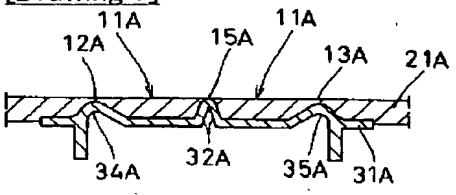

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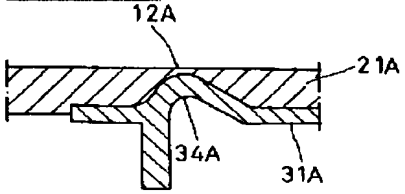
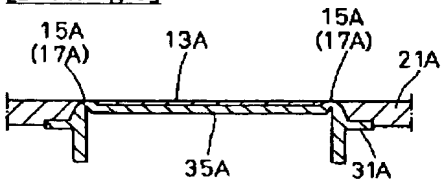
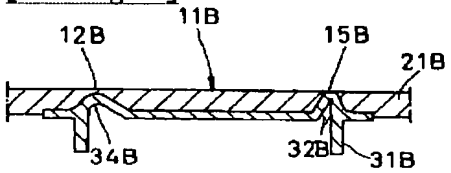


[Drawing 9]



[Drawing 11]



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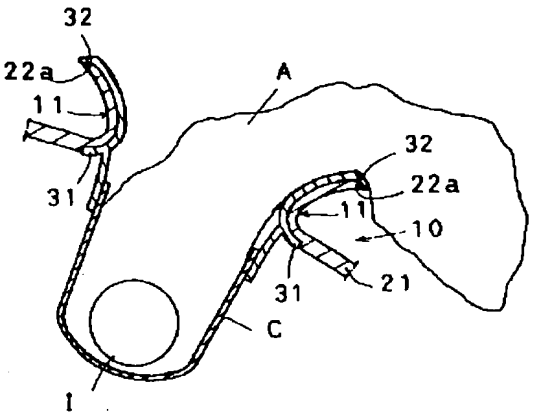

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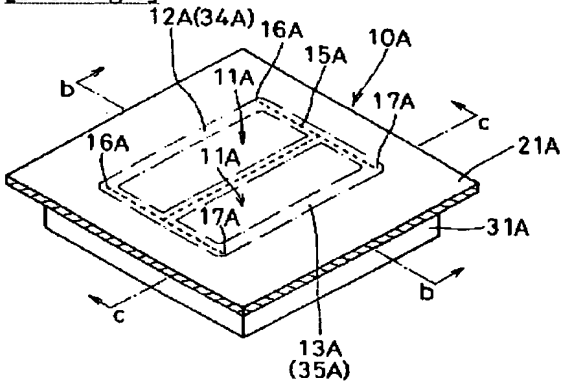
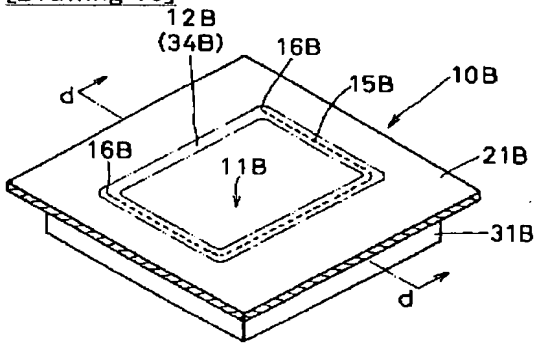
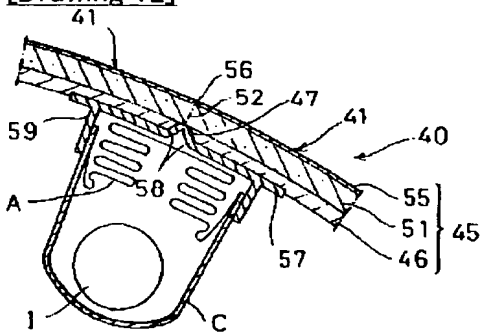


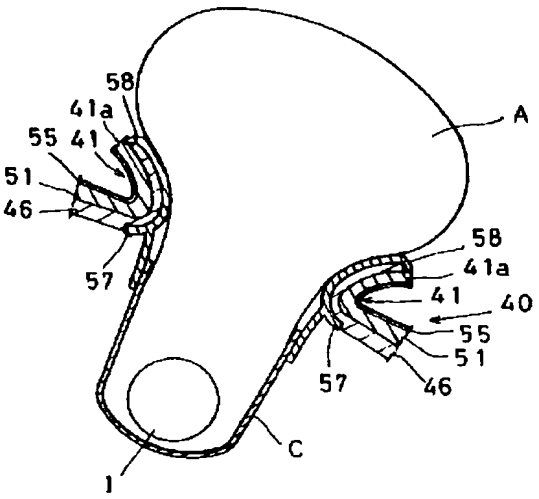
[Drawing 10]



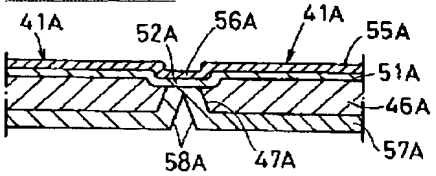
[Drawing 12]



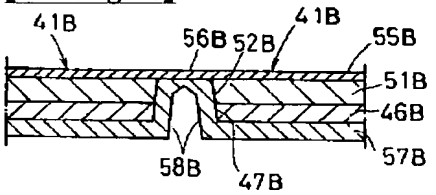
[Drawing 13]



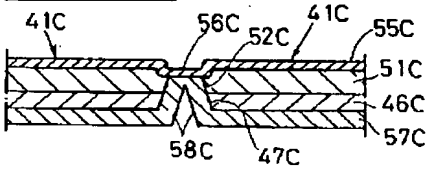
[Drawing 14]



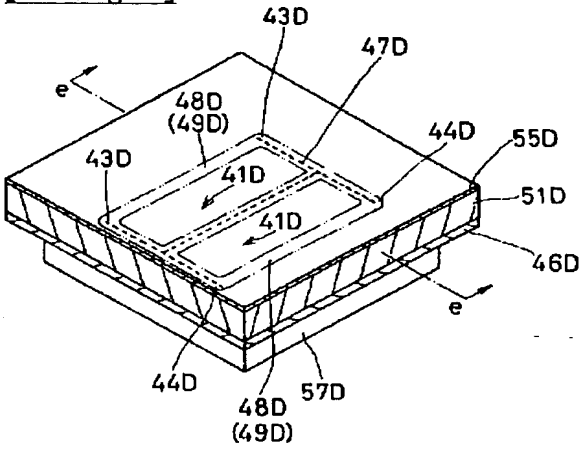
[Drawing 15]



[Drawing 16]



[Drawing 17]



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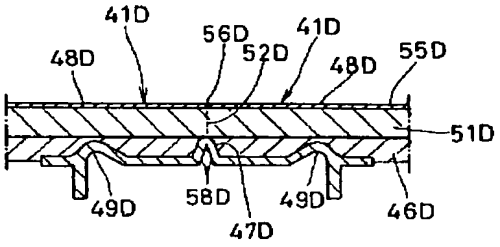

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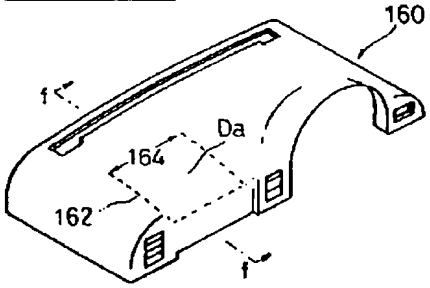

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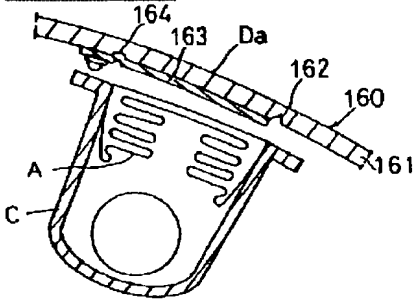

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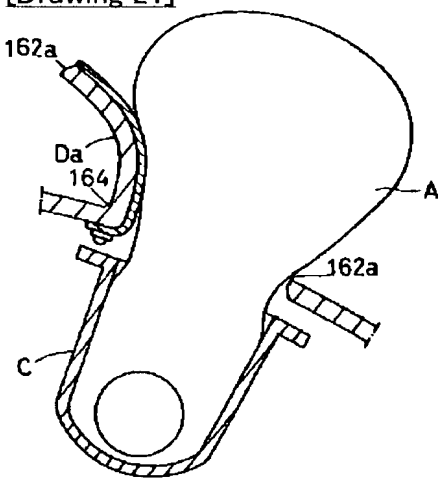

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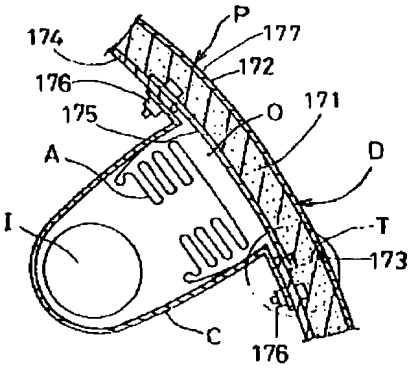

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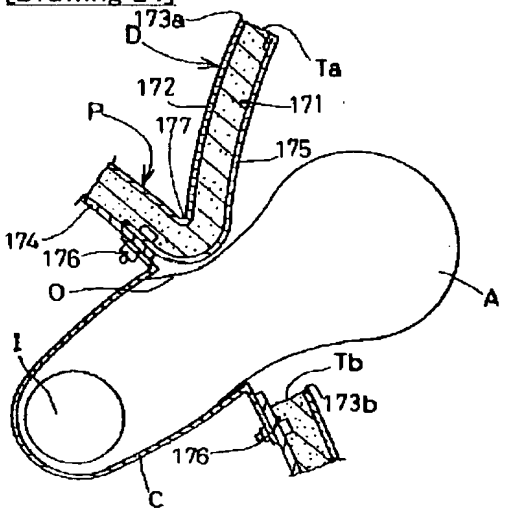
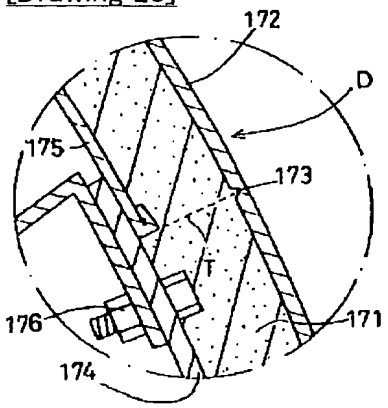


[Drawing 23]



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Ｂ６０Ｒ　21/20			Ｂ６０Ｒ　21/20		

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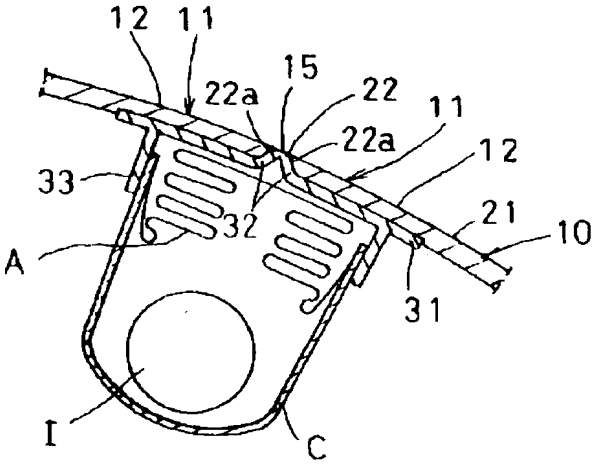
(54)【発明の名称】　エアバッグドアを一体に有する車室側部材の構造

(57)【要約】

【課題】　エアバッグドアＡ膨張時に破断予定部から破断してエアバッグドアが開き、また平時には破断予定部に亀裂を生じ難い安全性の高い車室側部材の構造を提供する。

【解決手段】　エアバッグＡ膨張時に破断予定部から破断して開くエアバッグドア１１を一体に有する車室側部材において、硬質樹脂からなる車室側部材本体２１と、該車室側部材本体の硬質樹脂よりも柔軟な樹脂よりなって前記エアバッグドアの裏側に略相当する車室側部材本体の裏面に一体に設けられ、前記破断予定部で車室側部材本体を分断するように車室側部材本体の表面側へ屈曲して車室側部材本体表面に露出している補強樹脂部材３１とよりなる。



【特許請求の範囲】
【請求項１】　樹脂製車室側部材に略Ｈ字状または略Ｕ字状等に破断予定部が形成され、エアバッグ膨張時に前記破断予定部から破断して開くエアバックドアを一体に有する車室側部材において、
硬質樹脂からなる車室側部材本体と、
該車室側部材本体の硬質樹脂よりも柔軟な樹脂よりなって前記エアバッグドアの裏側に略相当する車室側部材本体の裏面に一体に設けられ、前記破断予定部で車室側部材本体を分断するように車室側部材本体表面側へ屈曲し、該屈曲部が薄肉とされて車室側部材本体表面に露出している補強樹脂部材とよりなることを特徴とするエアバッグドアを一体に有する車室側部材の構造。
【請求項２】　請求項１において、補強樹脂部材が破断予定部の両端末間で車室側部材本体の表面側へ屈曲してヒンジ用屈曲部を形成し、該部で車室側部材本体の厚みが薄くなっていることを特徴とするエアバッグドアを一体に有する車室側部材の構造。
【請求項３】　樹脂製車室側部材に略Ｈ字状またはＵ字状等に破断予定部が形成され、エアバッグ膨張時に前記破断予定部から破断して開くエアバックドアを一体に有する車室側部材において、
硬質樹脂からなる基材に発泡体および表皮が積層された車室側部材本体と、
前記基材の硬質樹脂よりも柔軟な樹脂よりなって前記エアバッグドアの裏側に略相当する基材の裏面に一体に設けられ、前記破断予定部で基材を分断するように基材表面側へ屈曲し、該屈曲部が薄肉となって基材表面に露出している補強樹脂部材とよりなることを特徴とするエアバッグドアを一体に有する車室側部材の構造。
【請求項４】　請求項３において、破断予定部で補強樹脂部材が表皮の裏面に接触していることを特徴とするエアバッグドアを一体に有する車室側部材の構造。
【請求項５】　請求項３または４において、補強樹脂部材が破断予定部の両端末間で基材表面側へ屈曲してヒンジ用屈曲部を形成し、該部で基材の厚みが薄くなっていることを特徴とするエアバッグドアを一体に有する車室側部材の構造。

【発明の詳細な説明】
【０００１】
【発明の属する技術分野】この発明は、エアバッグドアを一体に有する車室側部材の構造に関する。
【０００２】
【従来の技術】近年、自動車においては助手席にもエアバッグ装置が設けられるようになった。このエアバッグ装置は、エアバッグと、そのエアバッグが収納されるキャニスタと呼ばれる収容ケースと、作動装置（インフレータ）とからなり、助手席前面のインストルメントパネル等からなる車室側部材の裏側に取り付けられる。エアバッグ装置が設けられたインストルメントパネルのエアバッグ部は、エアバッグのための展開開口部を有し、この開口部は平時には前記インストルメントパネルと同種の外観をもったエアバッグドアによって覆われている。そして、一旦衝突などによって自動車が大きな衝撃を受けた時には、前記エアバッグケース内に収納されているエアバッグが作動して膨張し、エアバッグドアを内側から押して開口させる。
【０００３】しかし、エアバッグ用展開開口部とエアバッグドアとが別体によって構成される構造のものにあっては、製品寸法のわずかなばらつきあるいは使用に伴う製品収縮などによりエアバッグドア周囲に隙間を生じ易く、インストルメントパネルの外観が損なわれるおそれがある。また、後工程によってインストルメントパネルのエアバッグ用展開開口部にエアバッグドアを取り付けることは工数を増大させることになる。
【０００４】そこで、最近では図１９およびそのｆ－ｆ断面である図２０に示すインストルメントパネル１６０のように、ポリプロピレン樹脂等からなる硬質樹脂１６１裏面にノッチ状の薄肉の破断予定部１６２を、この例のように平面形状が略Ｕ字状に、あるいは図示しない略Ｈ字状となるように形成してエアバッグドアＤａを区画形成するとともに、該エアバッグドアＤａ裏面にアルミ板や鉄板などの補強板１６３を裏打ちしたものが提案されている。符合１６４は破断予定部１６２の端部間で構成されるヒンジ部、Ａはエアバッグ、Ｃはエアバッグ収容ケースである。この構造によれば、図２１に示すように、エアバッグＡが膨張した際に前記インストルメントパネル１６０の破断予定部１６２が破断し、エアバッグドアＤａが開く。１６２ａは前記破断予定部１６２が破断した部分である
【０００５】また、図２２およびその一部を拡大する図２３に示すように、ポリプロピレン樹脂等の硬質樹脂からなってエアバッグ用展開開口部Ｏの形成された基材１７４に、ポリウレタン発泡体等の合成樹脂発泡体１７１が一体に積層形成され、さらにその表面が合成樹脂製表皮１７２で覆われてなる車室側部材（インストルメントパネル）Ｐが知られている。符合１７３は表皮１７２に形成された薄肉破断予定部、１７５はエアバグドア用芯材、１７６は車室側部材Ｐとエアバッグ収容ケースＣとを固定する取付け部材、Ｄはエアバッグドア、Ｔは発泡体１７１の破断予定部である。この構造によれば、図２４に示すように、エアバッグ膨張時にエアバッグドアＤが裏側からエアバッグＡにより押され、金属板等からなるエアバッグドア用芯材１７５を押し上げ、その押圧力によって発泡体の破断予定部Ｔおよび表皮１７２の薄肉破断予定部１７３が破断してエアバッグドアＤが開く。符合Ｔａ，Ｔｂは分断された発泡体の破断部、１７７はヒンジ部である。
【０００６】しかし、前者のタイプ、すなわち車室側部材が硬質樹脂からなるものにあっては、エアバッグの膨

張によって速やかに破断するよう、破断予定部の厚みを極めて薄くしなければならず、成形性との兼ね合いでその設計が容易ではなかった。しかも、破断予定部の厚みを極めて薄くすると、平時に破断予定部表面が乗員等によって押圧されると、該破断予定部に亀裂等を生じるおそれがある。

【０００７】一方、後者のタイプ、すなわち車室側部材が、硬質樹脂製の基材と発泡体と表皮からなるものにあっては、基材に形成されたエアバッグ用展開開口部に鉄板等のエアバッグドア用芯材を確実に固定しなければならないため、成形作業が煩雑であり、またコスト高となる問題があった。

【０００８】さらに、前記のいずれのタイプにおいても、エアバッグは膨張してエアバッグドアを押し広げた後、所定時間経過するとしぼんでしまう。その際、エアバッグドアは完全に閉じることなく開かれたままとなり、エアバッグドアＤａ，Ｄの破断部１６２ａ，Ｔａが上方を向いた状態となる。このエアバッグドアの破断部は硬質樹脂の破断面、あるいはエアバッグドア用芯材１７５の端面が露出しているため硬く、好ましいものではなかった。

【０００９】

【発明が解決しようとする課題】この発明は、前記の点に鑑みなされたもので、エアバッグの膨張によって破断予定部が速やかに破断してエアバッグドアが開き、また平時には破断予定部に亀裂を生じ難く、さらにはエアバッグドアの破断部における硬質樹脂端面がそれより柔軟な樹脂で隠蔽された安全性の高い車室側部材の構造を提供するものである。

【００１０】

【課題を解決するための手段】請求項１の発明は、樹脂製車室側部材に略Ｈ字状または略Ｕ字状等に破断予定部が形成され、エアバッグ膨張時に前記破断予定部から破断して開くエアバックドアを一体に有する車室側部材において、硬質樹脂からなる車室側部材本体と、該車室側部材本体の硬質樹脂よりも柔軟な樹脂よりなって前記エアバッグドアの裏側に略相当する車室側部材本体の裏面に一体に設けられ、前記破断予定部で車室側部材本体を分断するように車室側部材本体表面側へ屈曲し、該屈曲部が薄肉とされて車室側部材本体表面に露出している補強樹脂部材とよりなることを特徴とするエアバッグドアを一体に有する車室側部材の構造に係る。

【００１１】この請求項１に記載された発明にあっては、車室側部材が、その外形を定める硬質樹脂製の車室側部材本体と、その車室側部材本体裏面のエアバッグドア裏面部分に相当する部分に設けられた補強樹脂部材とよりなり、エアバッグの膨張によりエアバッグドア部分が内側から押されて破断予定部で破断する。

【００１２】前記破断予定部では、車室側部材本体の硬質樹脂より柔軟な補強樹脂部材が車室側部材本体を分断するように車室側部材本体表面側へ屈曲して車室側部材本体表面に露出しているため、車室側部材本体の分断部を埋める補強樹脂部材が、エアバッグの膨張により破断する。したがって、車室側部材本体の硬質樹脂より柔軟な補強樹脂部材が破断することになるため、その破断が速やかになされることとなる。また、その破断のし易さから前記破断予定部における補強樹脂部材の厚みの設定は、硬質樹脂の場合より厚くでき、その設定できる厚み範囲が広くなって成形も容易となる。

【００１３】さらに、前記のように破断予定部では補強樹脂部材によって車室側部材本体に分断部が形成され、その分断部の内周面（分断面）が、車室側部材本体の表面側へ屈曲した補強樹脂部材で覆われた状態となっている。したがって、前記補強樹脂部材の破断により開いたエアバッグドアの破断部端面は、前記車室側部材本体の分断部内周面を覆う補強樹脂部材で構成され、硬質樹脂より柔軟な樹脂（補強樹脂部材）で隠蔽された状態となる。

【００１４】請求項２の発明は、請求項１において、補強樹脂部材が破断予定部の両端末間で車室側部材本体の表面側へ屈曲してヒンジ用屈曲部を形成し、該部で車室側部材本体の厚みが薄くなっていることを特徴とする。

【００１５】この請求項２の発明にあっては、硬い車室側部材本体がヒンジ部で薄くされて剛性が低くなっているため、エアバッグ膨張時、破断予定部の破断に続き、エアバッグドアがヒンジ部で速やかに屈曲して車室内側へ開き、エアバッグのスムーズな展開を実現する。特に、請求項１の発明において車室側部材本体の裏面に補強樹脂部材が一体に設けられるため、ヒンジ部における厚みが増して剛性が高まるおそれがあるが、この請求項２の発明によれば、ヒンジ部の剛性を低下させ、エアバッグドアがより速やかに開くことができるようになる。その結果、エアバッグドアが未だ車室内側に十分屈曲する前に、破断予定部（破断後の破断予定部）の隙間からエアバッグが車室内にはみ出して、スムーズなエアバッグの展開が妨げられるのをより確実に防ぐことができる。さらに、エアバッグドアの表面側にはヒンジ部の剛性を下げるための凹部を設ける必要がないので、車室側部材の外観が良好になる。

【００１６】一方、請求項３の発明は、樹脂製車室側部材に略Ｈ字状またはＵ字状等に破断予定部が形成され、エアバッグ膨張時に前記破断予定部から破断して開くエアバックドアを一体に有する車室側部材において、硬質樹脂からなる基材に発泡体および表皮が積層された車室側部材本体と、前記基材の硬質樹脂よりも柔軟な樹脂よりなって前記エアバッグドアの裏側に略相当する基材の裏面に一体に設けられ、前記破断予定部で基材を分断するように基材表面側へ屈曲し、該屈曲部が薄肉となって基材表面に露出している補強樹脂部材とよりなることを特徴とするエアバッグドアを一体に有する車室側部材の

構造に係る。

【００１７】この請求項３に記載された発明にあっては、車室側部材が、硬質樹脂製基材に発泡体および表皮が積層された車室側部材本体と、前記基材裏面のエアバッグドア裏面部分に相当する部分に設けられた補強樹脂部材とよりなる。この請求項３の発明では、基材が、請求項１に記載された車室側部材本体と同様の構成からなる。そして、エアバッグの膨張によって、基材の破断予定部で補強樹脂部材が速やかに破断するとともに、該基材の破断予定部と対応する部分の発泡体および表皮も破断して、エアバッグドアが開く。エアバッグドアの破断部端面は、請求項１における車室側部材本体と同様の理由によって、基材の硬質樹脂より柔軟な補強樹脂部材で隠蔽された状態となる。

【００１８】請求項４の発明は、請求項３における補強樹脂部材が破断予定部で表皮の裏面に接触していることを特徴とする。この請求項４の発明にあっては、破断予定部の表皮と補強樹脂部材間に発泡体が介在しないため、車室側部材が破断予定部で破断する際に発泡体が飛散するのを防止できる。

【００１９】また、請求項５の発明は、請求項３または４における補強樹脂部材が破断予定部の両端末間で基材表面側へ屈曲してヒンジ用屈曲部を形成し、該部で基材の厚みが薄くなっていることを特徴とする。この請求項５の発明にあっては、硬い基材がヒンジ部で薄くされて剛性が低くなっているため、エアバッグ膨張時、破断予定部の破断に続き、エアバッグドアがヒンジ部で速やかに屈曲して車室内側へ開き、エアバッグのスムーズな展開を実現する。

【００２０】

【発明の実施の形態】以下添付の図面に従ってこの発明を詳細に説明する。まず請求項１の発明の実施例について説明する。図１はその実施例の車室側部材の斜視図、図２はそのエアバッグドア付近の斜視図、図３は図１のａ－ａ断面図、図４はエアバッグ膨張時、図５はエアバッグがしぼんだ際を示す断面図である。

【００２１】図１ないし図３に示す車室側部材１０は、自動車のインストルメントパネルを構成し、助手席側にエアバッグドア１１を一体に有する。この車室側部材１０は、車室側部材本体２１と、車室側部材本体２１の裏側に一体に設けられた補強樹脂部材３１とよりなって、エアバッグＡ膨張時に破断してエアバッグドア１１の開きを可能にするための破断予定部１５が、エアバッグドア１１を区画するように、平面視略Ｈ字形に形成されている。なお、破断予定部１５の平面形状は、従来技術の項の図１９において示した破断予定部１６２のように略Ｕ字形とされることもある。符号１２はエアバッグドアが開く際にヒンジ部となる部分で、破断予定部１５の両端末１６，１６間、１７，１７間に位置する。

【００２２】前記車室側部材本体２１は、車室側部材１０の外形を定めるとともにその表面を構成するもので、射出成形等により所要形状に形成された硬質樹脂成形品からなる。車室側部材本体２１を構成する硬質樹脂は、車室側部材に求められる剛性や強度を有するもので、ポリプロピレン樹脂（ＰＰ）等の汎用硬質樹脂が用いられる。特には、剛性および形状保持性等の点から、曲げ弾性率（ＪＩＳ－Ｋ７２０３準拠）２００００ｋｇｆ／ｃｍ^2 以上、熱変形温度（ＪＩＳ－Ｋ７２０７準拠）１２０℃以上（４．６ｋｇｆ荷重）のものが好ましい。この実施例では、曲げ弾性率２７０００ｋｇｆ／ｃｍ^2 、熱変形温度１３２℃、厚み２．５ｍｍのＰＰよりなる。

【００２３】また、前記車室側部材本体２１の破断予定部１５の部分には、破断予定部１５に沿って分断部２２が形成され、その分断部２２に車室側部材本体２１裏面の補強樹脂部材３１が食い込んで車室側部材本体２１表面で露出している。この分断部２２の幅（分断間隔）は適宜とされるが、一般的に２ｍｍ以下程度とされる。なお、この分断部２２は、前記車室側部材本体２１と補強樹脂部材３１とを同色とすることによって、また一体成形することによりほとんど外面からは判別できないようにするのが好ましい。

【００２４】補強樹脂部材３１は、前記破断予定部１５で車室側部材１０を破断し易くするとともに、エアバッグドア１１の破断部端面を隠蔽するためのもので、前記車室側部材本体２１を構成する硬質樹脂よりも柔軟な樹脂で形成され、車室側部材本体２１のエアバッグドア１１裏面側に一体に設けられている。

【００２５】この実施例の補強樹脂部材３１は、厚み３ｍｍ、縦１５０ｍｍ、横３２０ｍｍの長方形板状体に、車室側部材本体２１側へ突出するように略逆Ｖ字形に屈曲した屈曲部３２が、平面視略Ｈ字形となるように形成されている。前記屈曲部３２の頂点の厚みは、該頂点で破断し易いように、他部よりも薄くされる。一般的に０．３～０．５ｍｍ程度とされる。

【００２６】また、前記のように車室側部材本体２１の表面側へ屈曲した屈曲部３２は、平時に車室側部材１０の表面から破断予定部１５付近を押した際に、その押圧方向と略平行方向となって大なる剛性を発揮するため、平時における強度増大効果が高く、破断予定部１５の亀裂を防止する。

【００２７】さらにこの実施例の補強樹脂部材３１では、補強樹脂部材３１裏面の周縁近くに、枠部３３が立設されている。この枠部３３は、エアバッグ収容ケースＣの開口端部外周に嵌められ、エアバッグケースＣとこの車室側部材１０との間の固定を行なうのに用いられる。なお、その固定は図示しないボルト等の固定手段を用いてなされる。

【００２８】前記補強樹脂部材３１は、前記車室側部材本体２１を構成する硬質樹脂より柔軟な樹脂からなり、曲げ弾性率（ＪＩＳ－Ｋ７２０３準拠）１０００ｋｇｆ

／ｃｍ^2 ～５０００ｋｇｆ／ｃｍ^2 の樹脂が、破断し易く、またエアバッグドア１１部分の補強の点で好ましい。前記車室側部材本体２１が曲げ弾性率２７０００ｋｇｆ／ｃｍ^2 のＰＰからなるこの実施例においては、補強樹脂部材３１は、曲げ弾性率３０００ｋｇｆ／ｃｍ^2 のＴＰＯ（ポリオレフィン系熱可塑性エラストマー）樹脂からなる。

【００２９】なお、前記車室側部材１０の成形は、射出成形等により、容易に行なうことができる。すなわち、まず射出成形等によって補強樹脂部材３１を形成する。次いで、その補強樹脂部材３１を成形型にインサートとして配置し、硬質樹脂を射出して補強樹脂部材３１と一体になった車室側部材本体２１を形成することにより、所望の車室側部材１０を得ることができる。

【００３０】前記構造の車室側部材１０は、平時においては、前記したように、破断予定部１５における補強樹脂部材３１の屈曲部３２が奏する強度増大作用等によって、表面の押圧に対しても破断予定部１５に亀裂の発生を防ぐことができる。

【００３１】そして衝突等によって自動車に衝撃が加わった時には、インフレーターＩの作動によってエアバッグＡが膨張し、それにより補強樹脂部材３１の裏面が押され、薄肉の破断予定部１５が破断し、図４に示すようにエアバッグドア１１がヒンジ１２で屈曲して開き、エアバッグＡが車内で展開する。符合１５ａは破断部である。前記エアバッグ膨張時、破断予定部１５では、硬質樹脂からなる車室側部材本体２１が、それより柔軟な樹脂からなる補強樹脂部材３１によりあらかじめ分断されているため、エアバッグ膨張による押圧力が破断予定部１５の補強樹脂部材３１に集中し、効率よく破断する。しかもその補強樹脂部材３１は、車室側部材本体２１の硬質樹脂よりも柔軟な樹脂で構成されているため、破断が一層スムーズに、かつ迅速になされる。

【００３２】一旦膨張したエアバッグＡは、その後所定時間経過すると図５に示すようにしぼむ。その際、車室内に開いた状態のままとなるエアバッグドア１１は、破断部１５ａ部分において、車室側部材本体２１の前記分断部内周面（分断面）２２ａが前記補強樹脂部材３１の屈曲部３２で隠蔽されており、硬い硬質樹脂が露出してなく、車室側部材として好ましい。

【００３３】次に請求項２の発明の実施例について説明する。図６はその実施例におけるエアバッグドア付近を示す斜視図、図７は図６のｂ－ｂ断面図、図８はそのヒンジ部の拡大断面図、図９は図６のｃ－ｃ断面図、図１０は請求項２に記載された発明の他の実施例におけるエアバッグドア付近を示す斜視図、図１１は図１０のｄ－ｄ断面図である。

【００３４】請求項２に記載された発明においては、図６ないし図９に示すように、車室側部材１０Ａのエアバッグドア１１Ａ裏側に設けられた補強樹脂部材３１Ａが、車室側部材本体２１Ａの破断予定部１５Ａの両端末１６Ａ，１６Ａ間、１７Ａ，１７Ａ間、すなわちヒンジ部１２Ａ，１３Ａで、車室側部材本体２１Ａの表面側へ屈曲して、ヒンジ用屈曲部３４Ａ，３５Ａを形成し、該ヒンジ部１２Ａ，１３Ａで車室側部材本体２１Ａの厚みが薄くなっている。その他の点については、請求項１に記載された発明と同じである。符号３２Ａは破断予定部における補強樹脂部材３１Ａの屈曲部を示す。

【００３５】この請求項２に記載された発明にあっては、ヒンジ部１２Ａ，１３Ａにおいて、硬い車室側部材本体２１Ａが薄くされているため、エアバッグ膨張によるエアバッグドア１１Ａの開き時にヒンジ部１２Ａ１３Ａが屈曲しやすく、エアバッグドア１１Ａが速やかに開く。しかも、ヒンジ部１２Ａ，１３Ａの表面（外面）にはヒンジ部のための凹部が存在しないため、車室側部材１０Ａの外観が良好である。

【００３６】図１０は請求項２に記載された発明の他の実施例におけるエアバッグドア付近を示す斜視図、図１１は図１０のｄ－ｄ断面図である。この実施例の車室側部材１０Ｂは、破断予定部１５Ｂが略Ｕ字形からなり、その形状に応じて補強樹脂部材３１Ｂが形成されている点を除き、前記図６ないし図９の実施例と同様の構造からなる。符号１１Ｂはエアバッグドア、１２Ｂはヒンジ部、１６Ｂは破断予定部の両端末間、２１Ｂは車室側部材本体、３２Ｂは破断予定部における補強樹脂部材の屈曲部、３４Ｂはヒンジ用屈曲部である。

【００３７】次に請求項３の発明の実施例について説明する。図１２は請求項３に記載された発明の一実施例に係る車室側部材の断面図、図１３は同実施例のエアバッグ膨張時を示す断面図である。図示の車室側部材４０は、インストルメントパネルとして用いられるもので、エアバッグドア４１を一体に有し、車室側部材本体４５と補強樹脂部材５７とよりなる。車室側部材本体４５は、基材４６、発泡体５１および表皮５５からなって、車室側部材４０の外形を構成する。符合５２は発泡体の破断予定部を示す仮想の線であり、平面視略Ｈ字形を形成する。この発泡体の破断予定部５２、基材の破断予定部４７および表皮の破断予定部５６により車室側部材の破断予定部が構成され、エアバッグドア４１が区画される。

【００３８】基材４６は、この車室側部材４０の形状を保持したり、平時における所定押圧力に耐えられる剛性を付与するためのもので、射出成形等により車室側部材４０形状に応じて形成された硬質樹脂製品からなる。この基材４６を構成する硬質樹脂の種類や、厚みや物性等は、前記請求項１の実施例で示した車室側部材本体２１の硬質樹脂と同様のものが好ましい。また、この基材４６には他の部材の破断予定部５２，５６と対応する位置に基材用破断予定部４７が形成されている。この破断予定部４７では、エアバッグドア４１の裏側となる基材４

６の裏面に設けられた補強樹脂部材５７が食い込んで基材４６を分断させた状態となっている。なお、この実施例の基材４６は、曲げ弾性率２７０００ｋｇｆ／ｃｍ^2、熱変形温度１３２℃、厚み２．５ｍｍのＰＰよりなる。

【００３９】発泡体５１は、車室側部材４０表面の緩衝性を高めるためのものでポリウレタン発泡体等の弾性発泡体が好適である。また表皮５５は、車室側部材４０の表面を構成するもので、プラスチックレザー等からなり、スラッシュ成形や真空成形等により所定形状とされたものが用いられる。この表皮５５には、他の部材の破断予定部４７，５２と対応する位置にＶ字形の溝等からなる薄肉の表皮用破断予定部５６が形成されている。

【００４０】一方、補強樹脂部材５７は、エアバッグＡ膨張時に前記破断予定部５２で速やかに破断できるようにするとともに、平時にはその破断予定部５２を補強するためのもので、エアバックドア４１，４１の裏側となる基材４６の裏面に一体に設けられている。この補強樹脂部材５７は、前記基材用破断予定部４７において基材４６の車室側部材４０表面側へ略逆Ｖ時形に屈曲し、基材４６内に食い込んで基材４６を分断し、基材４６表面に露出する屈曲部５８の頂点部分が薄肉となって基材用破断予定部４７を埋める。

【００４１】前記補強樹脂部材５７は、基材４６より柔軟な樹脂からなり、その厚みや、樹脂の種類や物性は、請求項１の実施例において示した補強樹脂部材３１の場合と同じである。この実施例の補強樹脂部材５７は、曲げ弾性率３０００ｋｇｆ／ｃｍ^2 のＴＰＯ（ポリオレフィン系熱可塑性エラストマー）樹脂からなる。また、この実施例の補強樹脂部材５７は略長方形からなって、その裏面にエアバッグ収容ケースＣへの取付け用枠部５９が、補強樹脂部材５７の周縁内側に形成されている。

【００４２】なお、前記車室側部材４０の成形は、まず前記補強樹脂部材５７を射出成形等により形成し、その補強樹脂部材５７を成形型内にインサートとして配置し、基材４６を補強樹脂部材５７と一体に形成する。次いで、前記補強樹脂部材５７が一体となった基材４６と、表皮５５とを発泡成形型にセットし、基材４６と表皮５５間に発泡原料を注入して、前記基材４６および表皮５５と一体となった発泡体５１を形成する。その後成形品を発泡成形型から取り出せば、所望の車室側部材４０が得られる。

【００４３】前記構造を有する車室側部材４０は、エアバッグＡ膨張時、基材４６が押されて、基材用破断予定部４７で薄肉の補強樹脂部材５７が破断する。その際、基材用破断予定部４７では、硬質樹脂からなる基材４６が分断されているため、その分断部を埋める補強樹脂部材５７に応力が集中し、しかもその補強樹脂部材５７が基材よりも柔軟なため、きわめて速やかに破断する。また、それとほとんど同時に、発泡体５１がその破断予定部５２部分で破断し、さらには表皮５５が表皮用破断予定部５６で破断する。そして図１３に示すようにエアバッグドア４１，４１が押し開かれ、エアバッグＡが車室内に展開し、時間経過後エアバッグＡがしぼむ。このように破断して開いたエアバッグドア４１の破断部４１ａ，４１ａの端面は、硬質樹脂よりなる基材４６が、その硬質樹脂より柔軟な補強樹脂部材５７の前記屈曲部５８で隠蔽されており、車室側部材として好ましいものとなっている。

【００４４】なお、前記発泡体５１は表皮５５の裏打ち材として表皮５５と一体に形成されたものであってもよい。図１４はそのような表皮を用いた車室側部材の破断予定部を示す断面図である。この図に示す例においては、表皮５５Ａが軟質塩化ビニル樹脂シートからなって、その裏面にポリプロピレンフォームからなる発泡体５１Ａが一体に裏打ちされている。なお、表皮５５Ａの破断予定部５６Ａの表面は凹溝とされて装飾向上が図られている。また、発泡体５１Ａの破断予定部５２Ａの裏面には、表皮の破断予定部５６Ａの裏側内に至るＶ溝（図示せず）が適宜形成される。符号４６Ａは基材、４７Ａは基材の破断予定部、５７Ａは補強樹脂部材、５８Ａは破断予定部における補強樹脂部材の屈曲部である。

【００４５】次に請求項４に記載された発明について説明する。この請求項４に記載された発明の車室側部材は、請求項３に記載された発明と同様、基材に発泡体および表皮が積層されたものに関し、図１５はその一実施例の破断予定部を示す断面図である。

【００４６】この請求項４の発明にあっては、図１５に示すように、基材４６Ｂの破断予定部４７Ｂおよび発泡体５１Ｂの破断予定部５２Ｂの位置で、補強樹脂部材５７Ｂの屈曲部５８Ｂが基材４６Ｂおよび発泡体５１Ｂを分断して、表皮５５Ｂの破断予定部５６Ｂにおける表皮裏面と接触しており、その他の構造は請求項３に記載された発明と同様である。この発明の実施例においては、表皮５５Ｂの破断予定部５６Ｂと補強樹脂部材５７Ｂの屈曲部５８Ｂ間に発泡体５１Ｂが介在しないため、エアバッグの膨張による破断予定部の破断時に発泡体５１Ｂが飛散する恐れがない。なお、請求項４に記載された発明においても、図１６に示す他の実施例のように、表皮５５Ｃの破断予定部５６Ｃの表面に凹溝を設け、装飾性を高めてもよい。符号４６Ｃは基材、４７Ｃは基材の破断予定部、５１Ｃは発泡体、５２Ｃは発泡体の破断予定部、５７Ｃは補強樹脂部材、５８Ｃは破断予定部における補強樹脂部材の屈曲部である。

【００４７】図１７は請求項５に記載された発明の一実施例についてエアバッグドア付近を示す斜視図である。この請求項５に記載された発明は、前記請求項３または４に記載された発明と同様に、基材４６Ｄに発泡体５１Ｄおよび表皮５５Ｄが積層されたものに関し、基材の破断予定部４７Ｄの両端末４３Ｄ，４３Ｄ、４４Ｄ，４４

Ｄ間のヒンジ部４８Ｄ，４８Ｄで、補強樹脂部材５７Ｄが基材４６Ｄの表面側へ屈曲してヒンジ用屈曲部４９Ｄを形成し、該部で基材４６Ｄの厚みが薄くなっていることを特徴とする。従って、エアバッグの膨張によるエアバッグドア４１Ｄ，４１Ｄの開き時に、ヒンジ部４８Ｄ，４８Ｄで容易に屈曲してエアバッグドア４１Ｄ，４１Ｄが速やかに開く。符号４７Ｄは破断予定部における補強樹脂部材５７Ｄの屈曲部、５２Ｄは発泡体５１Ｄの破断予定部、５６Ｄは表皮５５Ｄの破断予定部である。

【００４８】なお、図１７の例は、破断予定部において補強樹脂部材の屈曲部４７Ｄと表皮５５Ｄの裏面間に発泡体５１Ｄが介在する場合であるが、前記補強樹脂部材の屈曲部４７Ｄが発泡体５１Ｄを介することなく表皮の破断予定部５６Ｄの裏面に接触するようにされることもある。

【００４９】また、前記請求項３ないし５に記載された発明においても、前記破断予定部は略Ｈ字形の他に適宜略Ｕ字形とされる。

【００５０】

【発明の効果】以上図示し説明したように、請求項１に記載された発明にあっては、破断予定部が車室側部材本体よりも柔軟な補強樹脂部材により構成されるため、エアバッグ膨張時に速やかに、かつ確実に破断してエアバッグドアを開く。さらに、前記破断予定部では補強樹脂部材が車室側部材の表面側へ屈曲しているため、平時に車室側部材表面が押圧された際に、その押圧方向に対する強度が高く、破断予定部で亀裂等を生じるのを防ぐ。加えて、エアバッグドアの破断部端面は硬質樹脂材よりなる車室側部材本体が、それより柔軟な補強樹脂部材により隠蔽されることになるため、車室側部材として好ましいものである。

【００５１】また、請求項２に記載された発明にあっては、請求項１の発明において、硬い車室側部材本体がヒンジ部で薄くされて剛性が低くなっているため、請求項１に記載された発明の効果に加え、次の効果を奏する。すなわち、エアバッグ膨張時に破断予定部における破断に続き、エアバッグドアがヒンジ部で速やかに屈曲して車室内側へ開き、エアバッグのスムーズな展開を実現する。

【００５２】一方、請求項３に記載された発明にあっては、基材の破断予定部が基材よりも柔軟な補強樹脂部材により構成されるため、エアバッグ膨張時に速やかに、かつ確実に破断してエアバッグドアを開く。さらに、前記基材の破断予定部では補強樹脂部材が車室側部材の表面側へ屈曲しているため、平時に車室側部材表面が押圧された際にも、その押圧方向に対する基材の強度が高く、破断予定部に亀裂等を生じるのを防ぐことができる。加えて、エアバッグドアの破断部端面は硬質樹脂材よりなる基材が、それより柔軟な補強樹脂部材で隠蔽されることになるため、車室側部材として好ましいものである。

【００５３】また、請求項４の発明は、請求項３において、破断予定部で補強樹脂部材が表皮の裏面に接触しているため、破断予定部の表皮と補強樹脂部材間に発泡体が介在せず、車室側部材が破断予定部で破断する際に発泡体が飛散する恐れがなくなる。

【００５４】さらに請求項５の発明は、請求項３または４における補強樹脂部材が破断予定部の両端末間で基材表面側へ屈曲してヒンジ用屈曲部を形成し、該部で基材の厚みが薄くなっているため、ヒンジ部で剛性が低くなり、エアバッグ膨張時に、破断予定部での破断に続き、エアバッグドアがヒンジ部で速やかに屈曲して車室内側へ開き、エアバッグのスムーズな展開を実現する。

【図面の簡単な説明】

【図１】請求項１に記載された発明の一実施例に係る車室側部材の斜視図である。

【図２】図１のエアバッグドア付近を示す拡大斜視図である。

【図３】図１のａ－ａ断面図である。

【図４】同実施例のエアバッグ膨張時を示す断面図である。

【図５】一旦膨張したエアバッグがしぼんだ状態を示す断面図である。

【図６】請求項２に記載された発明の一実施例におけるエアバッグドア付近を示す斜視図である。

【図７】図６のｂ－ｂ断面図である。

【図８】そのヒンジ部の拡大断面図である。

【図９】図６のｃ－ｃ断面図である。

【図１０】請求項２に記載された発明の他の実施例におけるエアバッグドア付近を示す斜視図である。

【図１１】図１０のｄ－ｄ断面図である。

【図１２】請求項３に記載された発明の一実施例に係る車室側部材の断面図である。

【図１３】同実施例のエアバッグ膨張時を示す断面図である。

【図１４】同発明の他の実施例についてその破断予定部を示す断面図である。

【図１５】請求項４に記載された発明の一実施例についてその破断予定部を示す断面図である。

【図１６】他の例における破断予定部を示す断面図である。

【図１７】請求項５に記載された発明の一実施例におけるエアバッグドア付近を示す斜視図である。

【図１８】図１７のｅ－ｅ断面図である。

【図１９】一般的なエアバッグドアを一体に有する車室側部材の斜視図である。

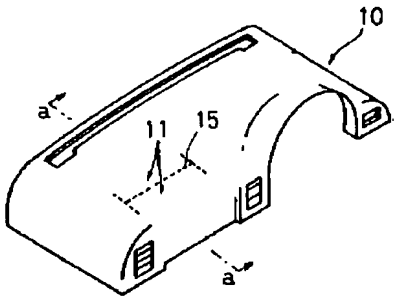
【図２０】そのｆ－ｆ断面図である。

【図２１】そのエアバッグ膨張時を示す断面図である。

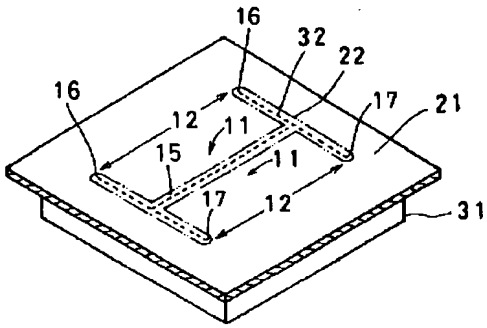
【図２２】エアバッグドアを一体に有する車室側部材の他の従来例の断面図である。

【図２３】その一部を拡大して示す断面図である。
【図２４】そのエアバッグ膨張時を示す断面図である。
【符号の説明】
１１，１１Ａ，１１Ｂ，４１，４１Ａ，４１Ｂ，４１Ｃ，４１Ｄ：エアバッグドア
１５，１５Ａ，１５Ｂ：破断予定部
２１，２１Ａ，２１Ｂ，４５：車室側部材本体
３１，３１Ａ，３１Ｂ，５７，５７Ａ，５７Ｂ，５７Ｃ，５７Ｄ：補強樹脂部材
３２，３２Ａ，３２Ｂ，５８，５８Ａ，５８Ｂ，５８Ｃ，５８Ｄ：補強樹脂部材の屈曲部
３４Ａ，３４Ｂ，３５Ａ，４９Ｄ：ヒンジ用屈曲部
４６，４６Ａ，４６Ｂ，４６Ｃ，４６Ｄ：基材
４７，４７Ａ，４７Ｂ，４７Ｃ，４７Ｄ：基材の破断予定部
５２，５２Ａ，５２Ｂ，５２Ｃ，５２Ｄ：発泡体の破断予定部
５１，５１Ａ，５１Ｂ，５１Ｃ，５１Ｄ：発泡体
５５Ａ，５５Ｂ，５５Ｃ，５５Ｄ：表皮
５６，５６Ａ，５６Ｂ，５６Ｃ，５６Ｄ：表皮の破断予定部

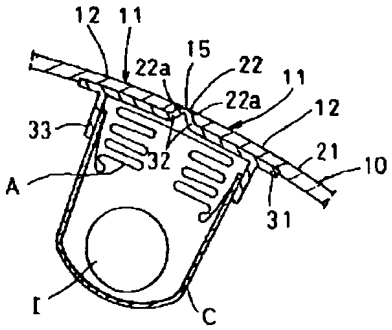
【図１】



【図２】



【図３】



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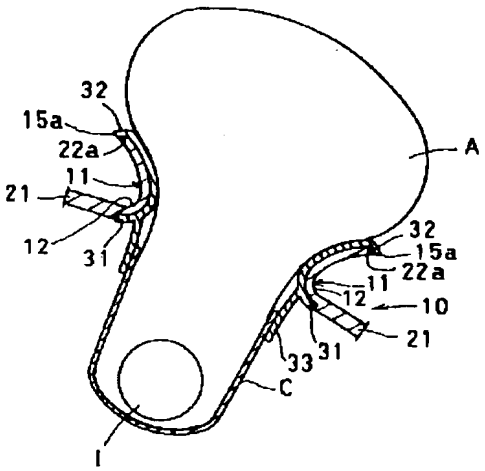

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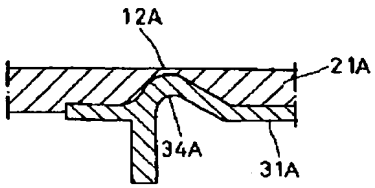

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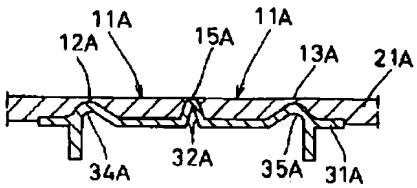

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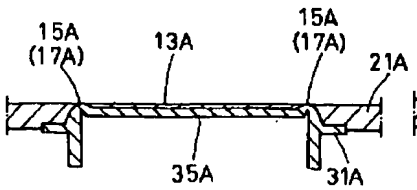
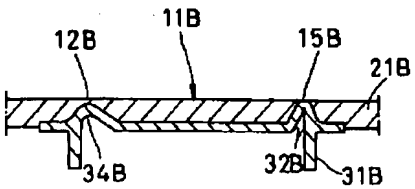


【図１１】



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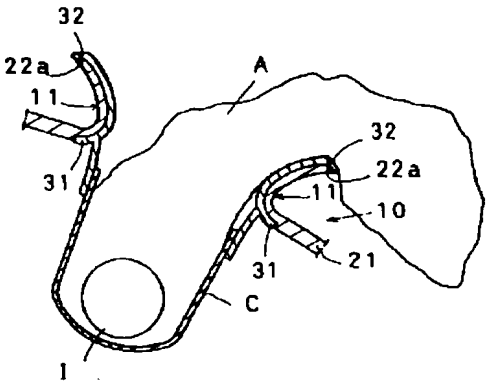

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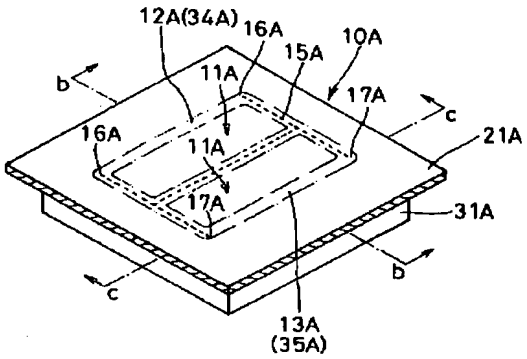

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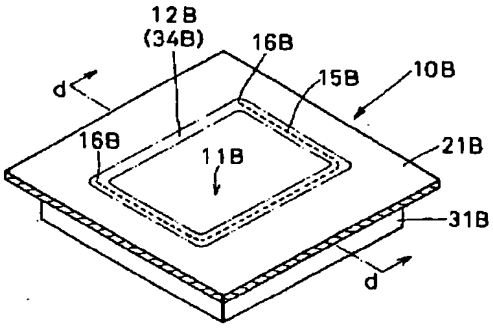

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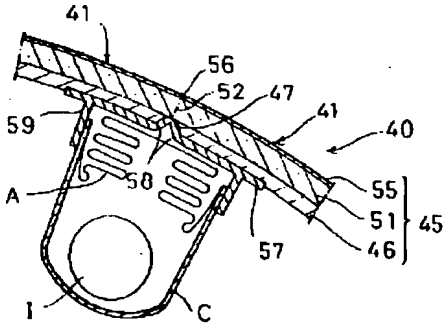

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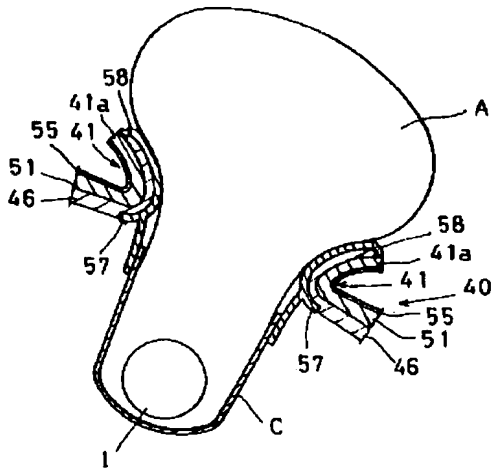

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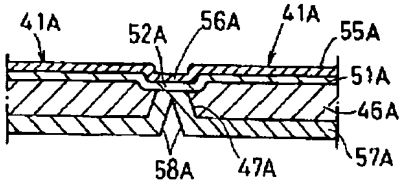

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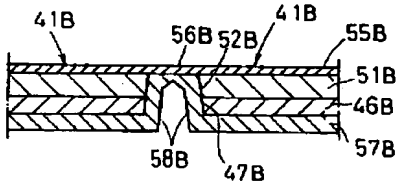

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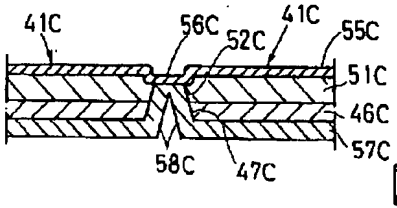

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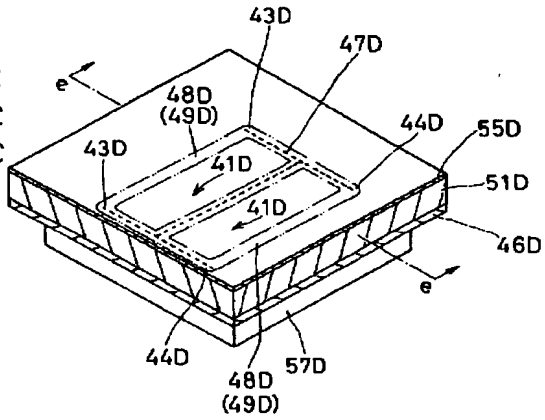

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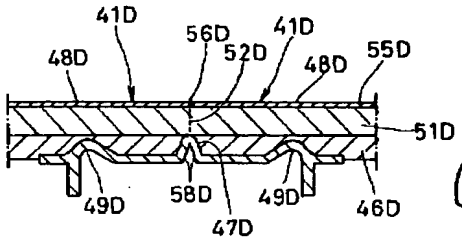

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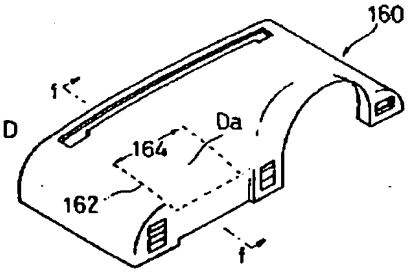
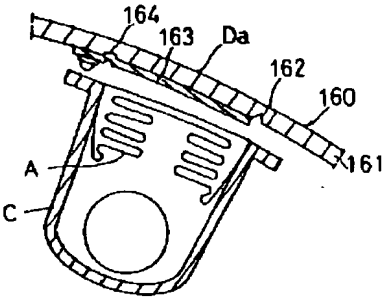
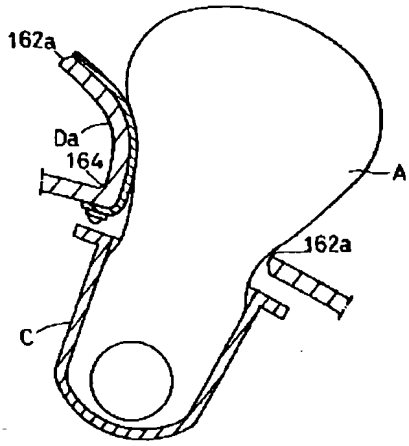


【図２０】



【図２１】



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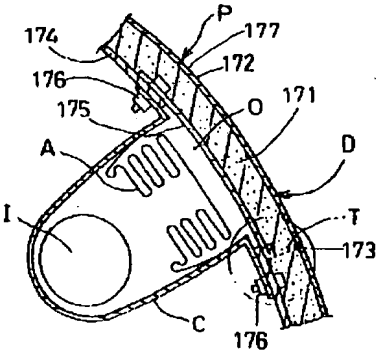

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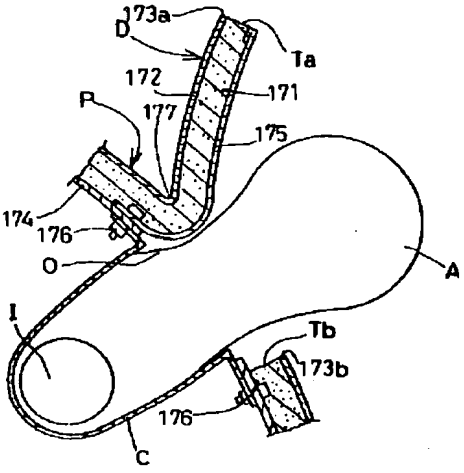

【図２３】